REMARKS

Reconsideration of this application, as amended, is respectfully requested.

Claims 1-30 are pending. Claims 1-30 stand rejected.

Claims 1, 6, 8, 9, 14, 16, 23, 24, 28, and 30 have been amended. Support for the amendments is found in the specification, the drawings, and in the claims as originally filed. Applicant submits that the amendments do not add new matter.

Rejections Under 35 U.S.C. § 112

The Examiner has rejected claims 8, 16 and 30 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification is such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The Examiner has stated that

> Claims 8, 16 and 30 recite "determining that the plurality of successive type hierarchy references is insufficient to check the type of the data object".

> Claims 8, 16 and 30 recite "repeating operations a) through d) such that type checking of the data object is accomplished".

(Page 2, Office Action 11/24/03)

The Examiner has rejected claims 6-8, 16, 23, 28 and 29 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner has stated that

> Claims 6, 23 and 28 recite "wherein the plurality of successive type hierarchy references comprises a maximum number of successive type hierarchy references required by a specific application". The scope of the present invention is unclear because it is unclear what specific application is being claimed by Applicant.

> Claims 7 and 29 recite "wherein the plurality of successive type hierarchy references comprises a number of successive type hierarchy references, the number of successive type hierarchy references dynamically determined at run time". The scope of the present invention is unclear what comprises a number.

Claims 8 and 16 recite "a) determining that the plurality of successive type hierarchy references is insufficient to check the type of the data object; b) obtaining a highest type hierarchy reference from the cache; c) accessing a subsequent data object, the subsequent data object referenced by the highest type hierarchy reference, the subsequent data object having a subsequent plurality of cached successive type hierarchy references corresponding to the subsequent data object; and d) accessing the subsequent plurality of cached successive type hierarchy references; and e) repeating operations a) through d) such that type checking of the data object is accomplished". The scope of the present invention is unclear because it is unclear what comprises a highest type, a subsequent data object, the subsequent data object having a subsequent plurality of cached successive type hierarchy references, and accessing the subsequent plurality of cached successive type hierarchy references.

(p. 2-3, Office Action 11/24/03)

Applicant has amended these claims to address the Examiner's rejections.

Rejections Under 35 U.S.C. § 102(e)

Claims 24, 25 and 27 stand rejected under 35 U.S.C. § 102(e) as being anticipated by

U.S. Publication No. 2003/0065874 of Marron, et al. ("Marron").

Applicant respectfully submits that claim 24 is not anticipated by Marron under 35

U.S.C. 102§(e). Claim 24, as amended, includes the following limitations:

An apparatus comprising:
a cache memory having stored therein a plurality of successive type hierarchy references corresponding to a data object;
a main memory having stored therein instructions; and
a processor to execute the instructions such that execution of the instructions causes the processor to access the cached type hierarchy references at run time to perform type checking of the data object by
determining, for a query type, that is within the portion of the plurality of successive type hierarchy references, if a data object type corresponding to the data object, is the query type, and if not
comparing a depth of the data object type within the plurality of successive type hierarchy references to a depth of the query type within the plurality of successive type hierarchy references;
determining that the data object type is not the query type if the depth of the data object type is not greater than the depth of the query type; and
comparing the query type to a corresponding type hierarchy reference and determining that the data object type is the query type if the query type and the corresponding type hierarchy are equal.

(Amended claim 24) (Emphasis added)

Applicants do not admit that Marron is prior art and reserve the right to swear behind this reference. However, applicants have amended the claims to distinctly claim the invention.

Applicants respectfully submit that Marron does not include the limitations contained in claim 24, specifically, Marron does not include the limitations of determining if a data object type is a query type as claimed. Moreover, applicant respectfully submits that claims 25 and 27 are not anticipated by Marron due to their dependency on claim 24.

Rejections Under 35 U.S.C. § 103(a)

Claims 1-3, 9-11, 14 and 15 stand rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Publication No. 2003/0065874 of Marron, et al. ("Marron") in view of U.S. Patent No. 5,793,965 of Vanderbilt, et al. ("Vanderbilt").

Applicant respectfully submits, however, that amended claim 1 is not obvious under 35 U.S.C. § 103 in view of Marron and Vanderbilt. Claim 1, as amended, includes the limitations

A method comprising:

caching a plurality of successive type hierarchy references corresponding to a data object within the data structure of the data object; and

accessing the cached type hierarchy references at run time to perform type checking of the data object by

determining, for a query type, that is within the portion of the plurality of successive type hierarchy references, if a data object type corresponding to the data object, is the query type, and if not

comparing a depth of the data object type within the plurality of successive type hierarchy references to a depth of the query type within the plurality of successive type hierarchy references;

determining that the data object type is not the query type if the depth of the data object type is not greater than the depth of the query type; and

comparing the query type to a corresponding type hierarchy reference and determining that the data object type is the query type if the query type and the corresponding type hierarchy are equal.

(Amended claim 1) (Emphasis added).

In contrast, neither Marron nor Vanderbilt, alone or in combination disclose these limitations. Therefore, for the reasons discussed above, applicant respectfully submits that Marron in view of Vanderbilt does not render claim 1 obvious.

Given that claims 2 – 8 depend, directly or indirectly, from claim 1, applicant respectfully submits that claims 2 – 8 are, likewise, not rendered obvious by Marron in view of Vanderbilt.

Further, given that claims 9 and 24 include similar limitations as claim 1, and further given that claims 10 – 16, and 25- 30 depend directly or indirectly, from claims 9 and 24, respectively, applicant respectfully submits that claims 10 – 16 and claims 25 – 30 are, likewise, not rendered obvious by Marron in view of Vanderbilt.

Claims 17 and 20 stand rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 5,819,283 of Turkowski et al. ("Turkowski") in view of U.S. Patent No. 6,427,123 of Sedlar ("Sedlar").

Applicant respectfully submits, however, that claim 17 is not obvious under 35 U.S.C. § 103 in view of Turkowski and Sedlar.
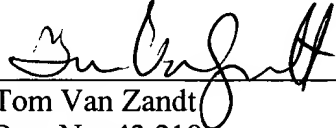
For this reason applicant respectfully submits that claim 17 is not rendered obvious by Turkowski in view of Sedlar. Given that claims 18 – 23 depend, directly or indirectly, from claim 17, applicant respectfully submits that claims 18 - 23 are, likewise, not rendered obvious by Turkowski in view of Sedlar.

It is also respectfully submitted that Turkowski does not teach or suggest a combination with Sedlar and that Sedlar does not teach or suggest a combination with Turkowski. It would be impermissible hindsight based on applicant's' own disclosure to incorporate the method for storing an extensible object of Turkowski into the relational system-based scheme for hierarchically indexing information of Sedlar. Moreover, such a combination would still lack an identifier that identifies successive type hierarchy references of a data object, as discussed above.

It is respectfully submitted that in view of the amendments and arguments set forth herein, the applicable rejections and objections have been overcome. If there are any additional charges, please charge Deposit Account No. 02-2666 for any fee deficiency that may be due.

Respectfully submitted,

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